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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MERCHANT & GOULD PC
P.O. BOX 2903
MINNEAPOLIS, MN 55402-0903

EXAMINER	
MONDESI, ROBERT B	
ART UNIT	**PAPER NUMBER**
1653	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/826,094	MADHYASTHA, SRINIVASA	
	Examiner	Art Unit	
	Robert B. Mondesi	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *16-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 35* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to restriction requirement

Applicants' election with traverse of Invention I, Claims 1-15 in amendment, filed January 13, 2005 is acknowledged. The traversal is on the ground(s) that sufficient reasons and or examples to justify a restriction requirement have not been provided. This is not found persuasive because the examiner provided adequate reasoning in the restriction requirement mailed December 13, 2004. If the applicants feel that the reasoning in the mentioned Office action is inadequate they must provide arguments stating why they believe the reasoning is inadequate. A general statement declaring that the "examiners reasoning is not sufficient" will not overcome the restriction requirement. Furthermore, the examiner is not required to provide examples in order to justify the restriction requirement. Also it is noted that the composition of the present application is searched in light of its claimed components and not its intend use or functional characteristics; therefore applicants statement that the search and examination of the compositions of Group I would encompass the method of treating a surface as claimed in Group II is not necessarily accurate.

Therefore the requirement is still deemed proper and is made FINAL. **Claims 1-35** are pending in this application. After a further review of the restriction requirement mailed January 13, 2005 the examiner has determined that claim 35 is a composition claim and belongs in Group I. **Claims 16-34** are withdrawn from further consideration by the Examiner because these Claims are drawn to non-elected inventions. **Claims 1-15 and 35** are currently under examination.

On March 11, 2005 in a telephonic interview the examiner requested a further election of patentably distinct polypeptides of claims 8 and 9. The applicants elected protamine sulfate (claim 8) and ovotransferrin (claim 9); therefore claims 8 and 9 will be examined in view of the elected patentability distinct products protamine sulfate (claim 8) and ovotransferrin (claim 9). If allowable the compositions ultimately determine the methods must be of the same scope and might be best in Jepson form.

Priority

The current application filed on April 16, 2004 claims priority to provisional application 60/588132 filed on March 31, 2004. The continuing data at page 1 of the specification needs to be updated.

Information Disclosure Statement

The IDS filed August 27, 2004 and September 20, 2004 has been received and is signed and considered, a copy of the PTO 1449 is attached to the following document.

Drawings

The drawings are objected to for containing figure legends. The figure legends in the drawing are unacceptable and belong in the brief description of drawing in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6, 8-10, 15 and 35 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a bacterial inhibiting composition comprising maleimides such as N-phenylmaleimides, does not reasonably provide enablement for a bacterial inhibiting composition comprising thiol-specific reagents. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The factors to be considered in determining whether undue experimentation is required are summarized In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir.1988). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the breadth of the claims, (2) the nature of the invention, (3) the state of the prior art, (4) the relative skill of those in the art, (5) the predictability or unpredictability of the art, (6) the amount or direction or guidance presented, (7) the presence or absence of working examples, and

(8) the quantity of experimentation necessary. Although the quantity of experimentation alone is not dispositive in a determination of whether the required experimentation is undue, this factor does play a central role. For example, a very limited quantity of experimentation may be undue in a fledgling art that is unpredictable where no guidance or working examples are provided in the specification and prior art, whereas the same amount of experimentation may not be undue when viewed in light of some guidance or a working example or the experimentation required is in a predictable established art. Conversely, a large quantity of experimentation would require a correspondingly greater quantum of guidance, predictability and skill in the art to overcome classification as undue experimentation. In Wands, the determination that undue experimentation was not required to make the claimed invention was based primarily on the nature of the art, and the probability that the required experimentation would result in successfully obtaining the claimed invention. (Wands, 8 USPQ2d 1406). Thus, a combination of factors which, when viewed together, would provide an artisan of ordinary skill in the art with an expectation of successfully obtaining the claimed invention with additional experimentation would preclude the classification of that experimentation as undue. A combination of Wands factors, which provide a very low likelihood of successfully obtaining the claimed invention with additional experimentation, however, would render the additional experimentation undue.

1. Breadth of the claims.

In regards to the composition of the invention and the breadth of the claims the broadest interpretation that applies is a composition for inhibiting bacterial bio-films

comprising a composition selected form the group consisting of: a thiol-specific reagent and a cationic polypeptide, a thiol-specific reagent and an iron-sequestering glycoprotein and a thiol-specific reagent and a quaternary ammonium compound.

2. The nature of the invention.

The invention is a composition for inhibiting bacterial bio-films comprising a composition selected form the group consisting of: a thiol-specific reagent and a cationic polypeptide, a thiol-specific reagent and an iron-sequestering glycoprotein and a thiol-specific reagent and a quaternary ammonium compound.

3. The state of prior art.

The prior art states that thiol-reactive compounds are often inhibitors of cysteine proteases or other proteins with an essential amino cysteine. Important biological properties concerning bactericidal, fungicidal and anticancer has been reported for N-substituted immides such as maleimides and related compounds (Zentz et al. 2002).

4. The relative skill in the art.

The relative skill in the art as it relates to the administering of therapeutic polypeptides used for the treatment, inhibition, prevention or amelioration of pancreatic disorder is characterized by that of a M.D. or Ph. D. level individual.

5. The level of predictability in the art.

The level of predictability in the art in regards to a composition having antimicrobial activity comprising any thiol-specific reagent is low.

In their publication Zentz et al. state that 31 compounds were synthesized as possible antimicrobial agents. These compounds belong to two families: maleimides (23

compounds) and succinimides (8 compounds). All succinimides (compounds 24-31) showed practically no antibacterial activity towards different bacteria strains tested, on the other hand maleimides (compounds 1-23) showed interesting antibacterial activity (page 424, column 2).

In a different publication, Filho et al. 1994 state that in their study maleimide derivatives showed an activity approximately 30 times higher than the corresponding succinimide derivatives, indicating that the double bond in the imido ring is an important factor related to the anti-microbial activity of the compounds.

6. The amount of guidance present.

The applicant has provided guidance a bacterial inhibiting composition comprising maleimides but not for a bacterial inhibiting composition comprising all thiol-specific reagents.

7. The existence of working examples.

The specification on pages 24-33 provides various examples and tables that show the effectiveness of a bacterial inhibiting composition-comprising maleimides such as N-phenylmaleimides,

8. The quantity of experimentation necessary.

In the case of the composition of the invention with regards to thiol-specific reagents more experimentation would be required to practice the invention since the specification has not shown to a person skill in the art how to use the invention.

Due to the large quantity of experimentation necessary to provide evidence that the claimed composition comprising thiol-specific reagents will inhibit bacterial activity,

the lack of guidance presented in the specification regarding the same, the absence of a working example directed to same, the unpredictable nature of the invention with regards to thiol-specific reagents and antimicrobial activity, the state of the prior art not providing evidence that all thiol-specific reagents exhibit antimicrobial activity, and the breath of the claims which fails to provide particular steps involved in using the composition of the invention to inhibit bacterial activity, the specification fails to teach the skilled artisan in the art how to make and use the invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5-8, 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raad et al. United States Patent 5,688,516 in view of Filho et al., 2002 (cited in the IDS filed August 27, 2004).

Raad et al. disclose an antimicrobial composition comprising protamine sulfate used for flushing and coating medical devices (column 5, lines 24-31).

Raad et al. teach that the concentration of protamine sulfate in the antimicrobial composition is about 0.001mg/ml to about 1000mg/ml (column 7, lines 22-24).

Raad et al. also teach that the antimicrobial composition of their invention further comprises an antibiotic (column 7, lines 2-9).

Raad et al. do not teach that their antimicrobial composition comprises thiol specific reagents such as n-phenylmaleimides.

Filho et al. teach that thiol specific reagents such as n-phenylmaleimides can be used in an antimicrobial composition (page 675, column 1, lines 1-18)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare an antimicrobial composition used for inhibiting microbial activity on medical devices comprising protamine sulfate and thiol specific reagents such as n-phenylmaleimides, because "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Claims 1, 5-10 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mebes et al. United states Patent 4,845,256 in view of Filho et al., 2002 (cited in the IDS filed August 27, 2004).

Mebes et al. teach that the use of quaternary sulfate as an antimicrobial agent is well known in the art (column 1, lines 10 –15)

Mebes et al. do not teach that their antimicrobial composition comprises thiol specific reagents such as n-phenylmaleimides.

Filho et al. teach that thiol specific reagents such as n-phenylmaleimides can be used in an antimicrobial composition (page 675, column 1, lines 1-18)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare an antimicrobial composition used for inhibiting microbial activity on medical devices comprising protamine sulfate and thiol specific reagents such as n-phenylmaleimides, because "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Claim 1-2, 4-9 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berry US2002/0133169 in view of Filho et al., 2002 (cited in the IDS filed August 27, 2004).

Berry teaches that some of the egg white proteins are to have antimicrobial activity. It is believed that those proteins that do show antimicrobial or anti-enzyme properties could potentially be used as microbial antagonists.

Berry teaches further that these include lysozyme, ovoflavoprotein, avidin and ovotransferrin (page 4, section 0043, lines 3-9).

Berry does not teach an antimicrobial composition that comprises thiol specific reagents such as n-phenylmaleimides.

Filho et al. teach that thiol specific reagents such as n-phenylmaleimides can be used in an antimicrobial composition (page 675, column 1, lines 1-18)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare an antimicrobial composition used for inhibiting microbial activity on medical devices comprising protamine sulfate and thiol specific reagents such as n-phenylmaleimides, because "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." In re Kerkhoven, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980).

Claims 1 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raad et al. United States Patent 5,688,516 in view of Filho et al., 2002 (cited in the IDS filed August 27, 2004). and further in view of Chinn et al. United States Patent 6,528,107.

Raad et al. and Filho et al. disclose an antimicrobial composition as mentioned above.

Raad et al. and Filho et al. do not disclose an antimicrobial composition that comprises dimethyl sulfoxide or methanol.

Chinn et al. teach that according to their invention the incorporation of the antimicrobial agent into medical devices can performed by using suitable solvents such as dimethyl sulfoxide or methanol (column 5, lines 55-62).

It would have been obvious to one ordinary skill in the art at the time the invention was made to use solvents such as methanol and dimethyl sulfoxide with a composition comprising a thiol specific reagent and a cationic protein for the advantages of incorporating the composition inot a medical device as taught by Raad et al., Filho et al. 2002 and Chinn et al., see Chinn et al. at column 5, lines 34-45.

Conclusion

No claims allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert B. Mondesi whose telephone number is 571-272-0956. The examiner can normally be reached on 9am-5pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached on 571-272-0925. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Robert B Mondesi
Patent Examiner
Group 1653

JON WEBER
SUPERVISORY PATENT EXAMINER